

GUNNING FOR BIG GAME: HOW UNCLE SAM'S CRACK SHOTS ON OAHU DO IT

Great Mortars Ready To Rain Shell on Invaders

By LAURENCE REDINGTON.

Everyone in Hawaii and a good many people not so fortunate as to live in Hawaii, know that Diamond Head is a fortified rock. Some of these people know that, sheltered behind the crater and frowning pall of the old volcano, a mortar battery is hidden, and while some have a fair working idea of what mortars are, there are still some who confuse the term with the building trades and college headgear.

A mortar is a dock-tailed cannon that looks as though it had grown suddenly rich and met a former acquaintance from the old village. It carries its nose in the air perpetually, and has a trick of looking over people's heads and then dropping something on them. Mortars won't look an enemy straight in the eye, as big guns will, but lie out of sight in pits and make their attacks via the back door.

There are eight mortars in the Diamond Head battery, located in two adjacent pits just above Fort Ruger itself. Hewn out of the solid rock at the very crest of the headland, is the position-finding station, where are located the delicate instruments used to "track" a hostile vessel and to make the calculations as to its exact position at the end of the known interval that it takes to fire the piece, and for the projectile to travel its journey. The officers in the range station take their observations and telephone the proper elevation and azimuth (lateral aim) to the battery. The mortars are then laid according to these figures and fired, and if everyone has done his work properly, the thousand-pound projectile, carrying its highly-explosive load which will detonate on contact, goes roaring skyward and seaward, to drop on the deck of an eight-million-dollar battleship and send her to the bottom.

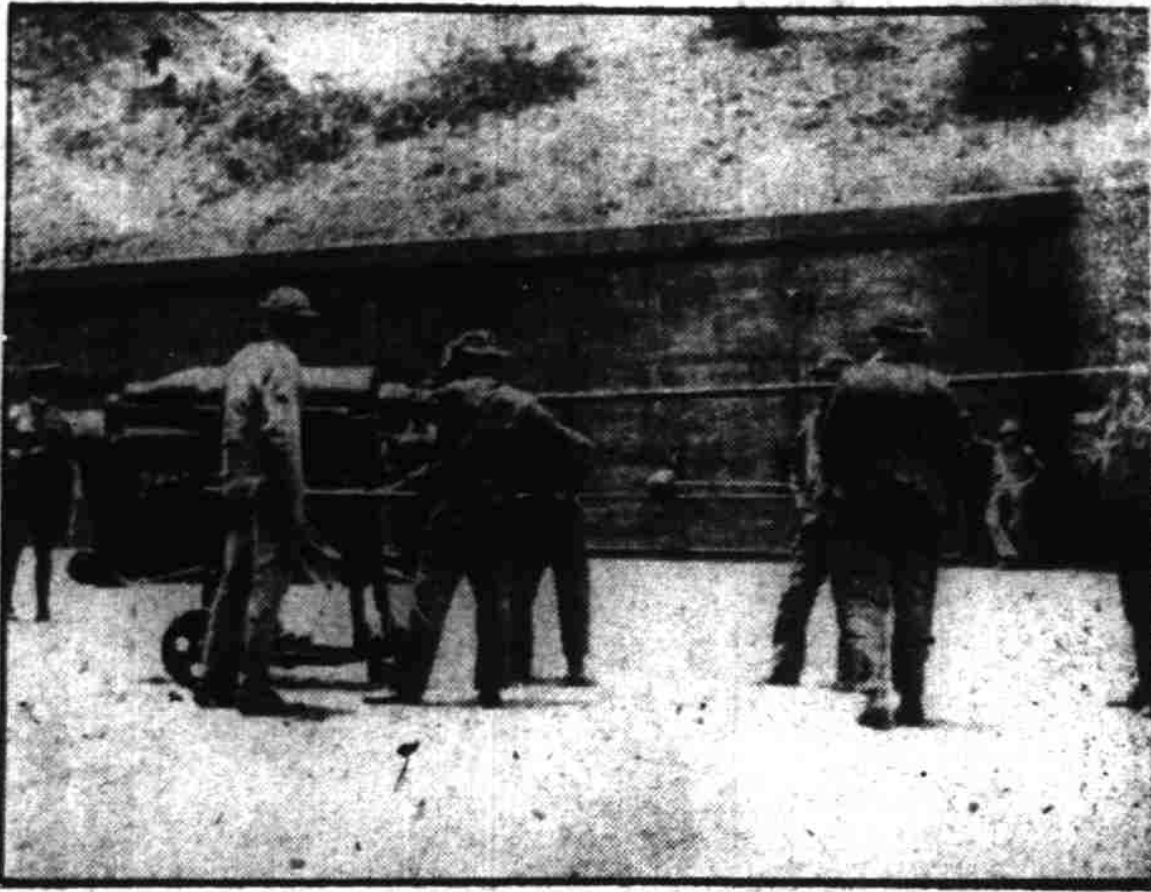
Shot Seven Miles. Roughly speaking, the maximum range of a mortar is seven miles, and for the shorter ranges the projectiles travel nearly four miles upward. For a mortar is the exact reverse of a gun, in that the shorter the range, the greater the elevation must be. Under these circumstances the marvel to the layman is that mortar batteries record any hits at all, and when it comes to making fifty to ninety per cent. of hits, as is sometimes done, the whole thing looks like a Missouri proposition.

The most interesting end of any war is the business end. The sharpshooter who lies behind a rock and takes pot shots at the man across the ravine from him, undoubtedly has a pleasant feeling in the pit of his stomach than the shooter, but I very much doubt if he has as much excitement. This is especially true of mortar firing, where the fellows who are doing the shooting never know whether they are making hits or missing by half a mile, while the men at the receiving end of the combination have a very vivid idea of whether the projectiles are landing near or far.

Having taxed my ear drums to the breaking point on the first day of the mortar practice held this week at Ruger, by hearing and seeing the firing from the pits themselves, I secured the necessary permission to view results from the receiving end of the battery, namely, to be aboard the navy tug Navajo when she towed the target across the zone of fire, while the mortars pumped ten shots at it, at one-minute intervals.

Battery Effective. This was last Wednesday, and it might be said here and now that the shooting that day was some of the best ever done in coast defense work. Out of the ten shots fired at a range of from 3240 to 3550 yards, seven of them landed within a radius of fifty yards of the ten-foot pyramidal target that is used merely as a marker to spot on. Anything within the fifty-yard circle counts as a hit, as the battery recorded seven, or seventy per cent. of hits. Had the mortars been fired a pit at a time, in salvoes of four, as would be the case in actual warfare, probably every salvo would have done execution.

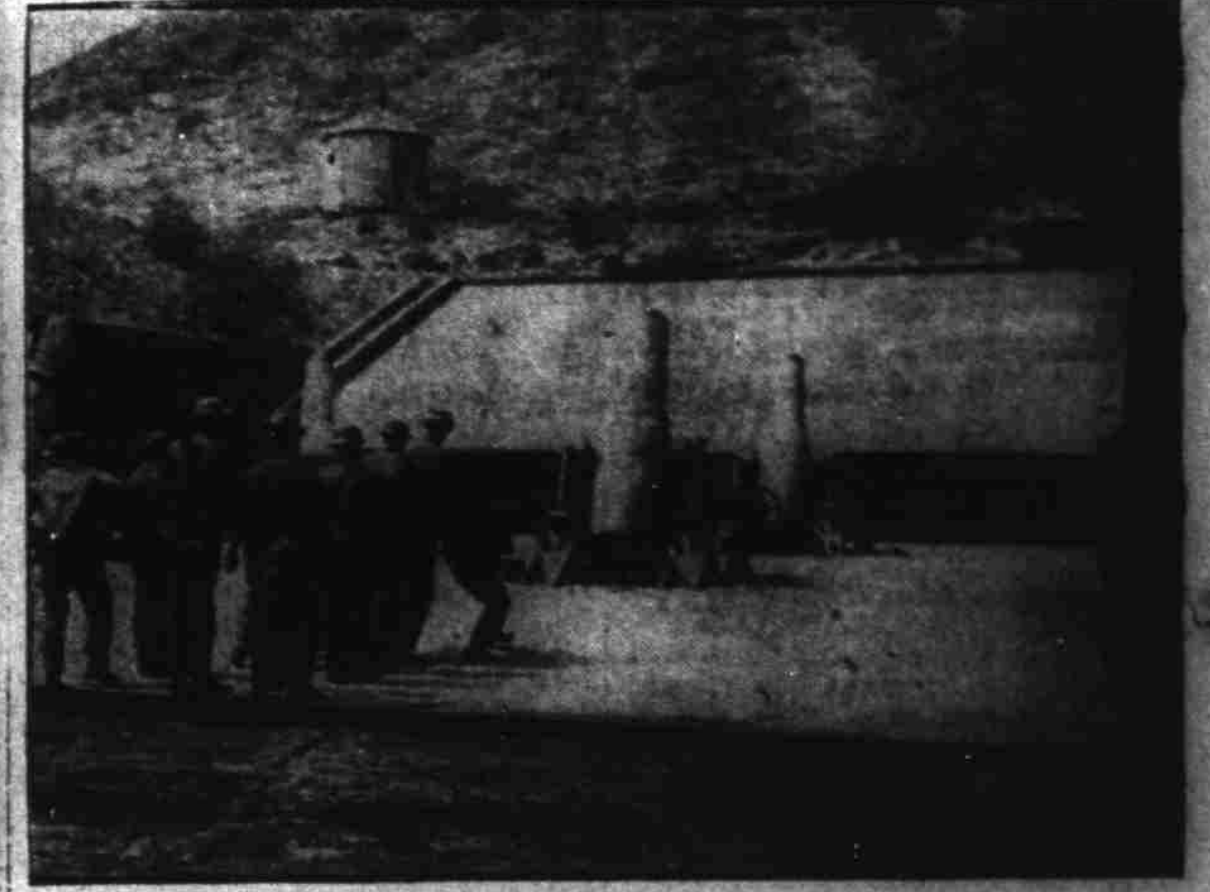
"Going out on the tug," said an army officer of my acquaintance when I informed him of that fact. "Well,



READY TO RAM THE PROJECTILE.



WAITING FOR THE COMMAND TO FIRE.



"CARRYING THEIR HEADS IN THE AIR."



WATCHING 'EM FLY SKYWARD.



THE MEN BEHIND THE MORTARS.

Captain Johnson (right), assistant battery commander, and Lieutenant Williams.



CAPTAIN CLARKE AND "HIS OLD CROSS-BOW"

that reminds me of a funny thing that happened at Fort Carey a year or so back. The range officer had been tracking on the tug in practice, and when the firing came along he forgot and, out of habit, kept his instrument on the tug instead of the target. It was a splendid shot, and the projectile went right down the smokestack and wrecked the engine room. It was only subcaliber practice, with three-inch projectiles, but if it had been service practice it would have sent the thing right to the bottom. Funny mistake to make, wasn't it?"

"Oh, yes; very funny," I answered somewhat weakly. "That officer does not happen to be stationed here, does he?"

He gave the requisite assurance, and also comforted me with the information that mortars were very good for line shots, their greatest difficulty being shooting short, or over the target. As there is a good 500 yards of towline between tug and target, and as several men with families who were going along didn't seem to be hunting notaries to witness their wills, I took heart and was at the navy dock promptly at 1 o'clock Wednesday afternoon, in quest of "copy" and some new sensations.

Shooting Conditions Ideal. On this second day of the practice the conditions for shooting were ideal. The atmosphere was clear, and there were no drifting fog wreaths over the ocean to complicate the difficulties of observation from the station, and to blur the signals that must be interchanged between ship and shore to put the target across the proper range of fire.

The Navajo had been turned over to the army by Admiral Cowles for the practice, and as her skipper, Chief Gunner Babson, has had plenty of experience at target towing, the Coast Artillerymen were fortunate in this respect. Besides, after towing the big 36x60 material targets that are used for naval practice, and for the big guns of coast defense batteries, the little ten-foot triangular affair used to mark the center of the imaginary circle which means a hit, is child's play to handle.

Captain Charles A. Clarke, C. A. C., a man of many titles and varied duties, was in charge of the ocean end of the shooting. For the time of practice he was assistant to the chief umpire, Lieut. Col. Archibald Campbell, and it up to him to see that the signals from the station were obeyed, and to see that the fall of the projectile was properly measured for range. He had to compute the shorts and overs, but had nothing to do with the lateral deflection, which was measured by an officer in the station.

Capt. Clarke is notable for his winning smile, his thick spectacles and his fund of general information, all of it useful and most of it interesting. He is district artillery engineer, district ordnance officer, officer in charge of fire control installation, and has other titles too numerous to put on one visiting card.

About Rakes. The captain jumped aboard the Navajo and, after nodding a collective greeting, asked if the "range rakes" were all right.

This was stumper No. 1, for any sort of a rake carried a strangely agricultural note which was out of tune with nautical surroundings and martial atmosphere. The only thing like it I ever heard of aboard ship was a "land ho," which a man up a mast once called loudly for when I happened to be sticking round the deck of a steamer.

I asked for an explanation, and Capt. Clarke produced the implement and told us all about it. A range rake, it seems, is used to measure the angle between the target and the splash which the projectile makes. It isn't a very impressive looking instrument, and one doesn't feel impelled to pass it with bated breath for fear of putting it out of adjustment. In fact, it's nothing more than a wooden bow gun, with the cross piece studded with small nails, for all the world like the teeth of a real rake.

The observer picks up this gun and sights it dead on the target. It is so graduated with relation to the length of the towline that each tooth is equal to a deflection of five yards. Three men handle the range rakes in target

practice, to check on each other, and when a shot is fired each man levels his rake on the target, with his eye guided to the rear sight. The projectile falls with a mighty splash that sends the water thirty feet or so in the air. If the splash is opposite the third tooth on the right hand cross arm of the instrument, the shot has fallen short by fifteen yards. The range rake is about the easiest instrument to understand that I ever had explained to me, and an experience which ranges from the latest improvement in astronomical photography to a mouse trap which saves the cheese by jerking it out of reach the moment the door shuts on the mouse, the patent on which I once had offered to me for one dollar Mex., makes me a qualified judge.

Signals by Searchlight. As the Navajo threaded its way through the choppy seas off Diamond Head, Captain Clarke gave some interesting sidelights on signaling.

"Last year," said the captain, "they signaled, or tried to signal from the station to the tug by flag wig-wag from the top of Diamond Head. It was almost impossible to make out the numbers on account of the background, for one moment a dark cloud would go behind the head, and then only a white flag could be seen. The next moment a white cloud would come sailing by, and the only thing

red flag. Naturally the signalman wouldn't change flags all the time, and as the result the messages were all mixed up.

"This year we're using something brand new," continued the captain. We are using flashes from the 60-inch searchlights to transmit signals, and they seem to work all right. The war department has just gotten out a code of ten signals for target practice, and we're trying them out. Then, if necessary, we can change and send messages in the Myer code, or in Morse.

We were well off Diamond Head and probably five miles from shore, when a thrilling rescue at sea was performed. The U. S. Engineer's launch Hilo had come out to see the fun, and the little boat was making such heavy weather of it that Captain Babson offered to tranship the only juvenile member of the party, a little girl who lost all her ardor for a life on the ocean wave, and several other things, during the voyage. The transfer was made without incident or accident.

Some Maneuvering. It's no easy matter to get a target exactly in the right zone for target practice and tow it smoothly across. Whatever the tug does is just the opposite of what's wanted ashore, it seems. I learned that one cardinal rule for a successful target practice is for everyone ashore to "cuss out" the towing and everything connected with it, and lay the blame for all misses on the tug, while, to play the game right the men on the tug have to be equally censorious of the "boneheads" ashore, who don't know what they want from one minute to the next. This is an unwritten regulation, and no target practice can go off without the dispute.

"We left the navy dock at 1 o'clock, and it was nearly 3 before the searchlight at the Kupikipiko station began to dazzle us with conversation. Receiving signals from a 60-inch light is like being the target for a hundred small boys armed with hand mirrors on a bright day. There's no question of seeing the light, and if the beam method of signaling is about the best ever devised."

Dot-dot-dot-dash, came the first message, three short flashes and a long one. A hasty consultation of the code card showed that this meant "Incline to starboard." Captain Clarke pulled the whistle cord to show the signal was understood, and Jimmie, Captain Babson's very lively terrier, let off four staccato barks. That was the program for the next half hour, giving the opportunity for the requisite "cussing out" process. We "inclined to starboard" as per signals until we had made a couple of complete turns. Captain Clarke pulled the whistle cord until he blistered his hand, and Jimmie barked himself into a frenzy.

Finally a red flag was run up to the staff on top of Diamond Head, showing that the battery was ready to fire.

When the shot is fired the flag will be dropped," explained Captain Clarke. "They will fire four trial shots first to get a line on the wind drift, and when they've made the necessary corrections will be ready to get us on the range."

We saw only one of the trial shots, as the fire was directed at a point in the water possibly a mile off our port hand. Just before the trial firing started, though, the liner Marama blundered into the field of fire, and tied the practice up for another half hour, while she scurried out of range. Finally the tug was headed due east in the proper zone, and the signal came that the battery would commence firing.

Shots Really Shriek. Up went a red flag on the Navajo, as a combined signal of danger to other craft and to let the battery know that all was ready aboard. Up went the red flag on Diamond Head, and then after a moment of intense watching, it came fluttering down again.

Captain Clarke and his two assistants grabbed their range rakes and made threatening gestures at the target. The camera man, who, by the way, is a most important personage, leveled his box astern and waited results.

"How can you tell just when a shot is coming," I had asked Captain Clarke previously. "You'll hear it right enough," he had answered with a grin. I heard it. It is necessary to

on imagination for a smile, but I think if a man was sitting under a railroad bridge one thousand feet high, and a fast freight pitched off the rails and came down engine foremost and without uncoupling, and under full steam, the noise would be something like that made by a mortar projectile. Next time you read about shrieking shells, don't put the adjective down to exaggeration.

Splash! A column of water shot up beside the bobbing target, the camera snapped, and the mathematical harvesters handed some rakish observations to Captain Clarke, who announced that the shot was 50 yards short. Then they began to drop at the rate of one a minute, and only one other fell outside the circle, at that. To show how accurately the shooting was gauged, the fourth shot was only 7 yards short, the seventh 12, and several came within 25. The top of the target would have been a mighty wet seat for anyone, and a mighty scary one, as well.

"Eight hits for range," announced Captain Clarke when the last trainload of noise had plunged from sky to sea. "If the deflection is as good we'll have a fine record."

Pictures Important. Without accident or incident the Navajo returned to her dock. On arrival the towline was accurately measured, and the camera man hurried off to develop his films. It might be

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